Claims

1. A flexible wiring substrate comprising

an insulating substrate,

a wiring pattern formed on a surface of the insulating substrate, and

a solder resist layer covering a surface of the wiring pattern excluding at least terminal portions of the wiring pattern,

at least a portion of the outermost surface of the wiring pattern which is not covered with the solder resist layer being provided with a tin-bismuth alloy plating layer,

characterized in that the wiring pattern comprises a base layer formed of a conductor and that a first tin plating layer is provided on the base layer so as to extend under a region covered with the solder resist layer and also under a region not covered with the solder resist layer.

2. A flexible wiring substrate according to claim 1, wherein the first tin plating layer of the wiring pattern present under a region not covered with the solder resist layer is provided with a second tin plating layer, and at least a portion of the area of the second plating layer is provided with the tin-bismuth alloy plating layer.

3. A flexible wiring substrate according to claim 1, wherein the first tin plating layer has a thickness of 0.001 μm to 0.6 μm.

4. A flexible wiring substrate according to claim 2,

wherein the first tin plating layer has a thickness of 0.001 μm to 0.6 μm.

5. A flexible wiring substrate according to claim 1, wherein the first tin plating layer has a thickness of 0.001 μm to 0.2 μm.

6. A flexible wiring substrate according to claim 2, wherein the first tin plating layer has a thickness of 0.001 μm to 0.2 μm.

7. A flexible wiring substrate according to claims 5 or 6, wherein the first tin plating layer is not subjected to heat treatment before provision of the solder resist layer.

8. A flexible wiring substrate according to any of claims 1 to 6, wherein the wiring pattern comprises a patterned copper layer and the first tin plating layer formed on the copper layer.

9. A flexible wiring substrate according to claim 7, wherein the wiring pattern comprises a patterned copper layer and the first tin plating formed on the copper layer.

10. A method for producing a flexible wiring substrate including an insulating substrate, a wiring pattern formed on a surface of the insulating substrate, and a solder resist layer covering a surface of the wiring pattern excluding at least terminal portions of the wiring pattern, at least a portion of the outermost surface of the wiring pattern which is not covered with the solder resist layer being provided with a tin-bismuth alloy plating layer, characterized in that the method comprises

a step of forming a base layer of the wiring pattern through patterning of a conductor layer;

a step of forming a first tin plating layer on the base layer;

a step of forming a solder resist layer so as to cover the first tin plating layer such that a portion of the first tin plating layer is exposed;

a step of forming a second tin plating layer on a region of the first tin plating layer, which region is not covered with the solder resist layer; and

a step of providing a tin-bismuth alloy plating layer on at least a portion of the region of the second tin plating layer.

11. A method for producing a flexible wiring substrate according to claim 10, wherein the first tin plating layer is formed so as to have a thickness of 0.001 μm to 0.6 μm.

12. A method for producing a flexible wiring substrate according to claim 10, wherein there are performed a step of forming the first tin plating layer so as to have a thickness of 0.001 μm to 0.2 μm and, subsequently, a step of forming the solder resist layer without performing heat treatment.